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SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

EXAMINER	
RYMAN, DANIEL J	
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/433,332	Applicant(s) DONOHUE, JOHN E.
	Examiner Daniel J. Ryman	Art Unit 2665

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 October 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 November 1999* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *8,9,10* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-29 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-4, 6, 9, 18, 20, 22, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dapper (USPN 6,282,683) in view of Chan et al (USPN 4,816,825) in further view of Eng et al (USPN 4,754,451).

4. Regarding claim 1, Dapper discloses a hybrid fiber coax network (col. 4 lines 58-59) comprising a head end (col. 4 line 59-col. 5 line 10); at least one optical distribution node coupled to the head end over at least one fiber optic link (col. 14 lines 22-25 and col. 120 lines 60-63); at least one coaxial cable link, coupled to the at least one optical distribution node, that receives upstream, digital data (col. 1 lines 25-32 and col. 125 lines 9-10) from a plurality of modems (col. 1 lines 25-32 and col. 125 lines 52-55); a laser transmitter coupled to the fiber optic link that transmits the upstream, digital data to the head end (col. 27 lines 35-36); a data concentrator (combiner) coupled to provide the upstream, digital data to the laser (col. 27 lines 29-38 and Fig. 5 reference 408); and a frequency translator (frequency shifter) that receives and

translates the upstream, digital data from the plurality of modems to a different carrier frequency (col. 27 lines 15-25 and Fig. 5 reference 64). Dapper possibly does not disclose having a frequency translator that receives and translates the upstream, digital data from the plurality of modems to a different carrier frequency and retransmits the signal to the plurality of modems for collision detection. Chan teaches having a frequency translator that receives and translates the upstream, digital data from the plurality of modems to a different carrier frequency and retransmits the signal to the plurality of modems for collision detection (col. 2 line 65-col. 3 line 17). Chan does this as a way to detect if collisions have occurred during the transmission by having the transmitting modem check for errors by comparing the original with the turn-around signal (col. 3 lines 13-17). It would have been obvious to one of ordinary skill in the art to have a frequency translator that receives and translates the upstream, digital data from the plurality of modems to a different carrier frequency and retransmits the signal to the plurality of modems for collision detection in order to ensure that the information is properly transmitted. Dapper in view of Chan possibly does not disclose having a data interface coupled between the frequency translator and the data concentrator that determines whether the upstream, digital data is valid. Eng discloses having filters (data interface) coupled to a data concentrator which ensure that the data entering the concentrator is valid (col. 7 lines 3-11). It is obvious that the filters are coupled directly to the data concentrator in order to ensure that invalid data cannot enter into the stream after the filters have checked it. Therefore it would have been obvious to one of ordinary skill in the art to have a data interface coupled directly to the concentrator, which would place it between the frequency translator and the data concentrator, in order to determine whether the upstream data is valid before it enters the concentrator.

5. Regarding claim 2, referring to claim 1, Dapper discloses that a portion of the upstream, digital data is transmitted over the at least one coaxial cable link on modulated carriers below 42 MHz (col. 124 lines 51-59).

6. Regarding claim 3, referring to claim 1, Dapper discloses that for downstream data "any number of modulation techniques may be used for transmission...the modulation techniques utilized and performed by RF modem...may include quadrature phase shift keying (QPSK), quadrature amplitude modulation (QAM), or other modulation techniques for providing the desired data rate" (col. 121 lines 27-34). Although this disclosure is for downstream data, it would be obvious that the same modulation techniques used for downstream transmission could be the same modulation techniques used for upstream transmission. Other modulation techniques include on-off keying which is well-known in the art. It would have been obvious to one of ordinary skill in the art of hybrid fiber/coax networks that the modulated carriers are modulated with the upstream, digital data using one of on-off keying, quadrature phase-shift keying and quadrature amplitude modulation.

7. Regarding claim 4, referring to claim 1, Dapper discloses that the upstream, digital data is carried on one of at least two modulated carriers (col. 124 lines 51-64 and col. 125 line 57-col. 126 line 1). Because there are multiple signals being sent in the frequency band, it would be obvious to modulate the upstream data on multiple carriers.

8. Regarding claim 6, referring to claim 1, Dapper discloses that the upstream, digital data comprises Ethernet packets (col. 95 lines 48-63). It is obvious that if Ethernet connections are used that the data is Ethernet packets.

9. Regarding claim 9, referring to claim 1, Dapper discloses a receiver circuit coupled to the fiber optic link and the at least one coaxial cable link that receives downstream optical signals and converts the signals to electrical signals for transmission over the at least one coaxial cable link (col. 122 line 39-64 esp. 59-64).

10. Regarding claim 18, Dapper discloses an optical distribution node (col. 14 lines 22-25 and col. 120 lines 60-63) for a hybrid fiber coax network (col. 4 lines 58-59) comprising: a laser transmitter coupled to the fiber optic link that transmits the upstream, digital data to the head end of the network (col. 1 lines 25-32 and col. 27 lines 35-36); a data concentrator (combiner) coupled to provide the upstream, digital data to the laser (col. 27 lines 29-38 and Fig. 5 reference 408); and a frequency translator (frequency shifter) for the coaxial link that receives the upstream, digital data modulated on a first carrier frequency from a plurality of modems and translated the upstream, digital data to a different carrier (col. 27 lines 115-25 and Fig. 5 reference 64). Dapper possibly does not disclose having a frequency translator that receives the data on a first carrier and translates the data to a different carrier frequency and retransmits the signal to the plurality of modems for collision detection. Chan teaches having a frequency translator that receives and translates the upstream, digital data from the plurality of modems to a different carrier frequency and retransmits the signal to the plurality of modems for collision detection (col. 2 line 65-col. 3 line 17). Chan does this as a way to detect if collisions have occurred during the transmission by having the transmitting modem check for errors by comparing the original with the turn-around signal (col. 3 lines 13-17). It would have been obvious to one of ordinary skill in the art to have a frequency translator that receives and translates the upstream, digital data from the plurality of modems to a different carrier frequency

and retransmits the signal to the plurality of modems for collision detection in order to ensure that the information is properly transmitted. Dapper in view of Chan possibly does not disclose having a data interface coupled between the frequency translator and the data concentrator that determines whether the upstream, digital data is valid. Eng discloses having filters (data interface) coupled to a data concentrator which ensure that the data entering the concentrator is valid (col. 7 lines 3-11). It is obvious that the filters are coupled directly to the data concentrator in order to ensure that invalid data cannot enter into the stream after the filters have checked it. Therefore it would have been obvious to one of ordinary skill in the art to have a data interface coupled directly to the concentrator, which would place it between the frequency translator and the data concentrator, in order to determine whether the upstream data is valid before it enters the concentrator.

11. Regarding claim 20, referring to claim 18, Dapper discloses that the upstream, digital data comprises Ethernet packets (col. 95 lines 48-63). It is obvious that if Ethernet connections are used that the data is Ethernet packets.

12. Regarding claim 22, referring to claim 18, Dapper discloses that the ODN receives upstream, digital data on at least one additional carrier (col. 124 lines 51-67 and col. 125 line 57-col. 126 line 1).

13. Regarding claim 23, referring to claim 18, Dapper discloses that the frequency translator receives the upstream, digital data modulated on a first carrier with a frequency that is below the frequency range for downstream transmissions (col. 124 lines 51-59), where downstream transmission frequencies are 54-725 MHz (col. 120 lines 39-40 and col. 121 lines 20-26).

14. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dapper (USPN 6,282,683) in view of Chan et al (USPN 4,816,825) in further view of Eng et al (USPN 4,754,451) as applied to claim 1 above, and further in view of Kavehrad et al (USPN 4,701,909) in further view of Griesing (USPN 4,959,829).

15. Regarding claim 5, referring to claim 1, Dapper in view of Chan in further view of Eng discloses a system that has a plurality of modems that transmit signals (retransmitted data) when a collision is detected based on signals from the frequency translator (Chan: col. 2 line 65-col. 3 line 17). Dapper in view of Chan in further view of Eng does not disclose that the modems transmit collision detection signals when a collision is detected. Kavehrad discloses transmitting a collision detection signal when a collision is detected in order to inform the system that a collision has occurred (col. 4 lines 16-29). By informing the transmitters in a system of a collision, the transmitters can use random backoff to ensure that one collision does not compound into more and more collisions. It would have been obvious to one of ordinary skill to transmit a collision detection signal in order to allow other transmitters to take proper steps to ensure that the collision does not lead to more collisions. Dapper in view of Chan in further view of Eng in further view of Kavehrad possibly does not disclose that the collision detection signal is transmitted on a different modulated carrier. Griesing teaches transmitting a collision detection signal that is distinct from a receive or transmit signal. This is done in order to prevent the interpretation of one signal from interfering with another (col. 3 lines 10-13). It is obvious that one way to separate the transmit or receive signal from the collision detection signal is to modulate the collision signal on a different carrier than the transmitted signals. It would have been obvious to one skilled in the art of hybrid fiber/coax networks to modulate the collision

detection signal on a different modulated carrier in order to prevent the collision detection signal from being confused with another signal.

16. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dapper (USPN 6,282,683) in view of Chan et al (USPN 4,816,825) in further view of Eng et al (USPN 4,754,451) as applied to claim 1 above, and further in view of Peyrovian (USPN 5,768,682)

17. Regarding claim 7, referring to claim 1, Dapper in view of Chan in further view of Eng does not disclose having at least a portion of the upstream, digital data transmitted over the plurality of coaxial cable links on modulated carriers above a cut-off frequency for downstream transmission. Peyrovian teaches having a portion of the upstream data transmitted on modulated carriers above a cut-off frequency for downstream transmission (col. 3 lines 25-42 esp. lines 36-43). Peyrovian does this because high frequency bands are less susceptible to noise than low frequency bands (col. 3 lines 44-53). It would have been obvious to one of ordinary skill in the art of hybrid fiber/coax networks to modulate a portion of the upstream data on carriers above a cut-off frequency for downstream transmission in order to make the upstream, digital data less susceptible to noise.

18. Claim 8 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dapper (USPN 6,282,683) in view of Chan et al (USPN 4,816,825) in further view of Eng et al (USPN 4,754,451) as applied to claim 1 and 18 above, and further in view of Beveridge (USPN 5,469,495).

19. Regarding claims 8 and 21, referring to claims 1 and 18, Dapper in view of Chan in further view of Eng discloses that the laser transmitter transmits the upstream, digital data as a modulated carrier transmission (Dapper: col. 125 line 57-col. 126 line 1). Dapper in view of

Chan in further view of Eng does not disclose that the laser transmitter transmits the upstream, digital data as a base-band transmission. Beveridge teaches transmitting an upstream, optical signal as a base-band transmission (col. 2 lines 10-20). Beveridge does this because a base-band signal "may be carried directly on a transmission line" (col. 1 lines 55-56). It is implicit that carrying the base-band signal directly over a transmission line does not require extra mechanisms to modulate and demodulate the signal. Thus the added difficulties of modulation and demodulation are removed making it easier to transmit the signal. It would have been obvious to one of ordinary skill in the art to allow for base-band signals to travel over the optical link because sending base-band signals requires less mechanisms and so is simpler than sending band-pass signals.

20. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dapper (USPN 6,282,683) in view of Chan et al (USPN 4,816,825) in further view of Eng et al (USPN 4,754,451) as applied to claim 18 above, and further in view of Hutchison (USPN 5,838,989).

21. Regarding claim 19, referring to claim 18, Dapper in view of Chan in further view of Eng does not specifically disclose that at least one media access unit coupled to the at least one coaxial cable link and the data concentrator are located in the at least one optical distribution node. Hutchison teaches the use of media access (attachment) units (MAU) to allow connection of a device (here the ODN) to a specific medium. By attaching an MAU between the device and the medium, the MAU allows data to travel onto the specific medium (Fig. 1, Fig. 3, and col. 1 lines 29-41 and col. 1 line 60- col. 2 line 14). Although Hutchison does not describe attaching an MAU to the at least one coaxial cable link and the data concentrator, it would have been obvious to do so. By placing a MAU on the data concentrator and the coax link, the optical distribution

node would be enabled to communicate over the coax cable medium. It would have been obvious to one of ordinary skill in the art to place media access units on the interfaces to a medium in order to allow a device to communicate over that medium.

22. Claims 10-12, 14, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dapper (USPN 6,282,683) in view of Chan et al (USPN 4,816,825).

23. Regarding claim 10, Dapper discloses a hybrid fiber coax network (col. 4 lines 58-59) comprising: a head end (col. 4 line 59-col. 5 line 10); at least one optical distribution node coupled to the head end over at least one fiber optic link (col. 14 lines 22-25 and col. 120 lines 60-63) to provide upstream, digital data to the head end (col. 1 lines 25-32, col. 27 lines 35-36, and col. 126 lines 4-6); at least one coaxial cable link, coupled to the at least one optical distribution node, that receives upstream, digital data (col. 1 lines 25-32 and col. 125 lines 9-10) from a plurality of modems (col. 1 lines 25-32 and col. 125 lines 52-55); and wherein at least a portion of the upstream, digital data is transmitted over the at least one coaxial cable link on at least one modulated carrier below a frequency range for downstream transmission (col. 124 lines 51-59), where downstream transmission frequencies are 54-725 MHz (col. 120 lines 39-40 and col. 121 lines 20-26). Dapper possibly does not disclose that the at least one optical distribution node includes circuitry for retransmitting upstream, digital data back over the at least one coaxial cable link to detect collisions on the at least one coaxial cable link. Chan teaches having a frequency translator that receives and translates the upstream, digital data from the plurality of modems to a different carrier frequency and retransmits the signal to the plurality of modems for collision detection (col. 2 line 65-col. 3 line 17). Chan does this as a way to detect if collisions have occurred during the transmission by having the transmitting modem check for errors by

comparing the original with the turn-around signal (col. 3 lines 13-17). It would have been obvious to one of ordinary skill in the art to have the at least one optical distribution node include circuitry (frequency translator) for retransmitting upstream, digital data back over the at least one coaxial cable link to detect collisions on the at least one coaxial cable link in order to ensure that the information is properly transmitted.

24. Regarding claim 11, referring to claim 10, Dapper discloses that for downstream data "any number of modulation techniques may be used for transmission…the modulation techniques utilized and performed by RF modem…may include quadrature phase shift keying (QPSK), quadrature amplitude modulation (QAM), or other modulation techniques for providing the desired data rate" (col. 121 lines 27-34). Although this disclosure is for downstream data, it would be obvious that the same modulation techniques used for downstream transmission could be the same modulation techniques used for upstream transmission. Other modulation techniques include on-off keying which is well-known in the art. It would have been obvious to one of ordinary skill in the art of hybrid fiber/coax networks that the modulated carriers are modulated with the upstream, digital data using one of on-off keying, quadrature phase-shift keying and quadrature amplitude modulation.

25. Regarding claim 12, referring to claim 10, Dapper discloses that the upstream, digital data is carried on one of at least two modulated carriers (col. 124 lines 51-64 and col. 125 line 57-col. 126 line 1). Because there are multiple signals being sent in the frequency band, it would be obvious to modulate the upstream data on multiple carriers.

26. Regarding claim 14, referring to claim 10, Dapper discloses that the upstream, digital data comprises Ethernet packets (col. 95 lines 48-63). It is obvious that if Ethernet connections are used that the data is Ethernet packets.

27. Regarding claim 17, referring to claim 10, Dapper discloses a receiver circuit coupled to the fiber optic link and the at least one coaxial cable link that receives downstream optical signals and converts the signals to electrical signals for transmission over the at least one coaxial cable link (col. 122 line 39-64 esp. 59-64).

28. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dapper (USPN 6,282,683) in view of Chan et al (USPN 4,816,825) as applied to claim 10 above, and further in view of Kavehrad et al (USPN 4,701,909) in further view of Griesing (USPN 4,959,829).

29. Regarding claim 13, referring to claim 10, Dapper in view of Chan discloses a system that has a plurality of modems that transmit signals (retransmitted data) when a collision is detected based on signals from the frequency translator (Chan: col. 2 line 65-col. 3 line 17). Dapper in view of Chan in further view of Eng does not disclose that the modems transmit collision detection signals when a collision is detected. Kavehrad discloses transmitting a collision detection signal when a collision is detected in order to inform the system that a collision has occurred (col. 4 lines 16-29). By informing the transmitters in a system of a collision, the transmitters can use random backoff to ensure that one collision does not compound into more and more collisions. It would have been obvious to one of ordinary skill to transmit a collision detection signal in order to allow other transmitters to take proper steps to ensure that the collision does not lead to more collisions. Dapper in view of Chan in further view of Kavehrad possibly does not disclose that the collision detection signal is transmitted on a

different modulated carrier. Griesing teaches transmitting a collision detection signal that is distinct from a receive or transmit signal. This is done in order to prevent the interpretation of one signal from interfering with another (col. 3 lines 10-13). It is obvious that one way to separate the transmit or receive signal from the collision detection signal is to modulate the collision signal on a different carrier than the transmitted signals. It would have been obvious to one skilled in the art of hybrid fiber/coax networks to modulate the collision detection signal on a different modulated carrier in order to prevent the collision detection signal from being confused with another signal.

30. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dapper (USPN 6,282,683) in view of Chan et al (USPN 4,816,825) as applied to claim 10 above, and further in view of Peyrovian (USPN 5,768,682)

31. Regarding claim 15, referring to claim 10, Dapper in view of Chan does not disclose having at least a portion of the upstream, digital data transmitted over the plurality of coaxial cable links on modulated carriers above a cut-off frequency for downstream transmission. Peyrovian teaches having a portion of the upstream data transmitted on modulated carriers above a cut-off frequency for downstream transmission (col. 3 lines 25-42 esp. lines 36-43). Peyrovian does this because high frequency bands are less susceptible to noise than low frequency bands (col. 3 lines 44-53). It would have been obvious to one of ordinary skill in the art of hybrid fiber/coax networks to modulate a portion of the upstream data on carriers above a cut-off frequency for downstream transmission in order to make the upstream, digital data less susceptible to noise.

32. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dapper (USPN 6,282,683) in view of Chan et al (USPN 4,816,825) as applied to claim 10 above, and further in view of Beveridge (USPN 5,469,495).

33. Regarding claim 16, referring to claim 10, Dapper in view of Chan discloses that the optical distribution node transmits the upstream, digital data as a modulated carrier transmission (Dapper: col. 125 line 57-col. 126 line 1). Dapper in view of Chan does not disclose that the ODN transmits the upstream, digital data as a base-band transmission. Beveridge teaches transmitting an upstream, optical signal as a base-band transmission (col. 2 lines 10-20). Beveridge does this because a base-band signal "may be carried directly on a transmission line" (col. 1 lines 55-56). It is implicit that carrying the base-band signal directly over a transmission line does not require extra mechanisms to modulate and demodulate the signal. Thus the added difficulties of modulation and demodulation are removed making it easier to transmit the signal. It would have been obvious to one of ordinary skill in the art to allow for base-band signals to travel over the optical link because sending base-band signals requires less mechanisms and so is simpler than sending band-pass signals.

34. Claims 24, 25, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dapper (USPN 6,282,683) in view of Chan et al (USPN 4,816,825) in further view of Usui (USPN 4,534,239).

35. Regarding claim 24, Dapper discloses a method for processing data in a return path of a hybrid fiber/coax network comprising: receiving, on a first coaxial cable, upstream, digital data modulated on a first carrier (col. 1 lines 25-32 and col. 124 lines 59-63); translating (shifting) the frequency of the first carrier to a second frequency (col. 125 line 57-col. 126 line 1);

retransmitting the upstream, digital data modulated on the carrier with the second frequency (col. 125 line 57-col. 126 line 1); concentrating (combining) the upstream, digital data with upstream, digital data from other coaxial cables (col. 27 lines 29-38); and transmitting the concentrated, upstream, digital data to the head end (col. 27 line 35-36). Dapper possibly does not disclose having collision detection. Chan teaches having a frequency translator that receives and translates the upstream, digital data from the plurality of modems to a different carrier frequency and retransmits the signal to the plurality of modems for collision detection (col. 2 line 65-col. 3 line 17). Chan does this as a way to detect if collisions have occurred during the transmission by having the transmitting modem check for errors by comparing the original with the turn-around signal (col. 3 lines 13-17). It would have been obvious to one of ordinary skill in the art to have collision detection in order to ensure that the information is properly transmitted. Dapper in view of Chan possibly does not disclose checking for collision detection signals. Usui discloses having a receiver check for a collision detection signal in order to determine if the received packet has been corrupted (col. 4 lines 58-64). It would have been obvious to one of ordinary skill to check for a collision detection signal in order to determine if a received packet was corrupted by a collision.

36. Regarding claim 25, referring to claim 24, Dapper discloses receiving digital data on a first carrier below a frequency range for downstream transmission (col. 124 lines 51-59), where downstream frequencies are 54-725 Mhz (col. 120 lines 39-40 and col. 121 lines 20-26).

37. Regarding claim 29, referring to claim 24, Dapper discloses that the upstream, digital data comprises Ethernet packets on a modulated carrier (col. 95 lines 48-63). It is obvious that if Ethernet connections are used that the data is Ethernet packets.

38. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dapper (USPN 6,282,683) in view of Chan et al (USPN 4,816,825) in further view of Usui (USPN 4,534,239) as applied to claim 24 above, and further in view of Peyrovian (USPN 5,768,682)

39. Regarding claim 26, referring to claim 24, Dapper in view of Chan in further view of Usue does not disclose having at least a portion of the upstream, digital data transmitted over the plurality of coaxial cable links on modulated carriers above a cut-off frequency for downstream transmission. Peyrovian teaches having a portion of the upstream data transmitted on modulated carriers above a cut-off frequency for downstream transmission (col. 3 lines 25-42 esp. lines 36-43). Peyrovian does this because high frequency bands are less susceptible to noise than low frequency bands (col. 3 lines 44-53). It would have been obvious to one of ordinary skill in the art of hybrid fiber/coax networks to modulate a portion of the upstream data on carriers above a cut-off frequency for downstream transmission in order to make the upstream, digital data less susceptible to noise.

40. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dapper (USPN 6,282,683) in view of Chan et al (USPN 4,816,825) in further view of Usui (USPN 4,534,239) as applied to claim 24 above, and further in view of Griesing (USPN 4,959,829)

41. Regarding claim 27, referring to claim 24, Dapper in view of Chan in further view of Usui possibly does not disclose that checking for collision detection signals comprises monitoring a third frequency for collision detection signals. Griesing teaches transmitting a collision detection signal that is distinct from a receive or transmit signal. This is done in order to prevent the interpretation of one signal from interfering with another (col. 3 lines 10-13). It is obvious that one way to separate the transmit or receive signal from the collision detection signal

is to modulate the collision signal on a different carrier than the transmitted signals. It would have been obvious to one skilled in the art of hybrid fiber/coax networks to modulate the collision detection signal on a different modulated carrier in order to prevent the collision detection signal from being confused with another signal. It also would have been obvious to one of ordinary skill in the art to monitor this different carrier in order to determine if a collision had or had not occurred.

42. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dapper (USPN 6,282,683) in view of Chan et al (USPN 4,816,825) in further view of Usui (USPN 4,534,239) as applied to claim 24 above, and further in view of Beveridge (USPN 5,469,495).

43. Regarding claims 8 and 21, referring to claims 1 and 18, Dapper in view of Chan in further view of Usui discloses transmitting the upstream, digital data as a modulated carrier transmission (Dapper: col. 125 line 57-col. 126 line 1). Dapper in view of Chan in further view of Usui does not disclose transmitting the upstream, digital data as a base-band transmission. Beveridge teaches transmitting an upstream, optical signal as a base-band transmission (col. 2 lines 10-20). Beveridge does this because a base-band signal "may be carried directly on a transmission line" (col. 1 lines 55-56). It is implicit that carrying the base-band signal directly over a transmission line does not require extra mechanisms to modulate and demodulate the signal. Thus the added difficulties of modulation and demodulation are removed making it easier to transmit the signal. It would have been obvious to one of ordinary skill in the art to allow for base-band signals to travel over the optical link because sending base-band signals requires less mechanisms and so is simpler than sending band-pass signals.

Conclusion

44. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Stutt et al (USPN 4,101,834) see col. 2 lines 6-10 which are pertinent to claim 3 (OOK).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Ryman whose telephone number is (703)305-6970. The examiner can normally be reached on Mon.-Fri. 7:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (703)308-6602. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-6743 for regular communications and (703)308-9051 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-3900.

Daniel J. Ryman
Examiner
Art Unit 2665

DJR

Daniel J. Ryman
November 1, 2002

HUY D. VU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800